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CLAIMS

1. (original) A method for processing an input signal for application to an amplifier to generate an amplified output signal, comprising:

generating an index into a look-up table based on the input signal;

adjusting the index to compensate for changes in operating characteristics of the amplifier over time;

retrieving one or more pre-distortion parameters from the look-up table based on the adjusted index; and

pre-distorting the input signal based on the one or more pre-distortion parameters to generate a pre-distorted input signal for application to the amplifier.

- 2. (currently amended) The invention method of claim 1, wherein the index is adjusted based on a measure of distortion in the amplified output signal.
- 3. (currently amended) The invention method of claim 2, wherein the measure of distortion is based on a narrow-band power level in the amplified output signal.
- 4. (currently amended) The invention method of claim 1, further comprising amplifying the pre-distorted input signal with the amplifier to generate the amplified output signal.
- 5. (currently amended) The invention method of claim 4, wherein amplifying the predistorted input signal comprises controlling overall gain of the amplifier to compensate for the changes in the operating characteristics of the amplifier.
- 6. (currently amended) The invention method of claim 5, wherein the overall gain is controlled based on a comparison of power of the pre-distorted input signal and power of the amplified output signal.
- 7. (currently amended) The invention method of claim 5, wherein the overall gain is controlled to keep the overall gain substantially constant over time.
- 8. (currently amended) The invention method of claim 7, wherein the overall gain is further controlled to reduce distortion in the amplified output signal.
- 9. (currently amended) The invention method of claim 5, wherein the overall gain is controlled to reduce distortion in the amplified output signal.
- 10. (currently amended) The invention method of claim 5, wherein amplifying the predistorted input signal further comprises controlling bias applied to one or more amplifier stages of the amplifier.
- 11. (currently amended) The invention method of claim 10, wherein the bias is controlled based on a measure of distortion in the amplified output signal.
- 12. (currently amended) The invention method of claim 11, wherein the measure of distortion is based on a narrow-band power level in the amplified output signal.
- 13. (currently amended) The invention method of claim 4, wherein amplifying the predistorted input signal comprises controlling bias applied to one or more amplifier stages of the amplifier.

adapted to adjust the index based on a measure of distortion in the amplified output signal.

(currently amended) The invention apparatus of claim 22, wherein the index adjuster is

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24. (currently amended) The invention apparatus of claim 23, wherein the measure of distortion is based on a narrow-band power level in the amplified output signal.

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- 25. (currently amended) The invention apparatus of claim 22, further comprising the amplifier adapted to amplify the pre-distorted input signal to generate the amplified output signal.
- 26. (currently amended) The invention apparatus of claim 25, wherein the amplifier is adapted to control overall gain of the amplifier to compensate for the changes in the operating characteristics of the amplifier.
- 27. (currently amended) The invention apparatus of claim 26, wherein the amplifier is adapted to control the overall gain based on a comparison of power of the pre-distorted input signal and power of the amplified output signal.
- 28. (currently amended) The invention apparatus of claim 26, wherein the amplifier is adapted to control the overall gain to keep the overall gain substantially constant over time.
- 29. (currently amended) The invention apparatus of claim 28, wherein the overall gain is further controlled to reduce distortion in the amplified output signal.
- 30. (currently amended) The invention apparatus of claim 26, wherein the overall gain is controlled to reduce distortion in the amplified output signal.
- 31. (currently amended) The invention apparatus of claim 26, wherein the amplifier is further adapted to control bias applied to one or more amplifier stages of the amplifier.
- 32. (currently amended) The invention apparatus of claim 31, wherein the amplifier is adapted to control the bias based on a measure of distortion in the amplified output signal.
- 33. (currently amended) The invention apparatus of claim 32, wherein the measure of distortion is based on a narrow-band power level in the amplified output signal.
- 34. (currently amended) The <u>invention apparatus</u> of claim 25, wherein the amplifier is adapted to control bias applied to one or more amplifier stages of the amplifier.
- 35. (currently amended) The invention apparatus of claim 34, wherein the amplifier is adapted to control the bias based on a measure of distortion in the amplified output signal.
- 36. (currently amended) The invention apparatus of claim 35, wherein the measure of distortion is based on a narrow-band power level in the amplified output signal.
 - 37. (currently amended) The invention apparatus of claim 25, further comprising: a first power detector adapted to detect power of the pre-distorted input signal; a second power detector adapted to detect power of the amplified output signal; a receiver adapted to detect narrow-band power of the amplified output signal at a selected

frequency; and
a controller adapted to process the detected powers from the first and second power detectors and

from the receiver to generate one or more control signals used to control operations within the apparatus.

9	applying the measure to one or more algebraic equations to generate one or more
10	parameter values; and
11	applying the one or more parameter values to one or more polynomials to update the
12	look-up table.
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1	48. (currently amended) The invention method of claim 47, wherein the measure is average
2	power of the input signal.
а	49. (currently amended) The invention method of claim 47, wherein each algebraic equation
1	months of the second of the se
2	is a piecewise linear curve.
ì	50. (currently amended) The invention method of claim 47, wherein:
2.	the measure is applied to four algebraic equations to compare four parameters.
3	the measure is applied to four algebraic equations to generate four parameter values; and
4	the four parameter values are applied to two second-order polynomials to update two pre-
4	distortion parameters in the look-up table.
1	51. (currently amended) The invention method of claim 47, wherein the pre-distortion
2	parameters are frequency-dependent pre-distortion parameters.
_	parameters are frequency dependent pre-distortion parameters.
1	52. (currently amended) The invention method of claim 47, wherein the pre-distortion
2	parameters are frequency-independent pre-distortion parameters.
	1 and
1	53. (currently amended) The invention method of claim 47, wherein the look-up table is
2	updated at a specified periodic rate.
1	54. (currently amended) The invention method of claim 47, wherein the look-up table is
2	updated based on a detected change in operating conditions of the amplifier.
1	55. (currently amended) The invention method of claim 54, wherein the detected change in
2	the amplifier operating conditions corresponds to a change in a parameter value greater than a specified
3	threshold value.
1	56. (currently amended) The invention method of claim 47, wherein the one or more
2	parameter values are fine-tuned based on output spectrum of the amplifier.
1	57. (original) Apparatus for processing an input signal for application to an amplifier to
2	generate an amplified output signal, comprising:
3	a look-up table adapted to provide one or more pre-distortion parameters based on the input
4	signal;
5	a pre-distorter adapted to pre-distort the input signal based on the one or more pre-distortion
6	parameters to generate a pre-distorted input signal for application to the amplifier; and
7	a controller adapted to automatically update the look-up table by:
8	generating a measure based on current operations of the amplifier;
9	applying the measure to one or more algebraic equations to generate one or more
10	parameter values; and
11	applying the one or more parameter values to one or more polynomials to update the
12	look-up table.
	TOOK-up table.
1	58. (currently amended) The invention apparatus of claim 57, wherein:
2	the measure is average power of the input signal; and
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further comprising an envelope detector adapted to detect current power of the input signal, wherein the controller uses the current input signal power to generate the average input signal power.

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- 59. (currently amended) The invention apparatus of claim 57, wherein each algebraic equation is a piecewise linear curve.
- 60. (currently amended) The invention apparatus of claim 57, wherein: the controller is adapted to apply the measure to four algebraic equations to generate four parameter values; and

the controller is adapted to apply the four parameter values to two second-order polynomials to update two pre-distortion parameters in the look-up table.

- 61. (currently amended) The invention apparatus of claim 57, wherein the pre-distortion parameters are frequency-dependent pre-distortion parameters.
- 62. (currently amended) The invention apparatus of claim 57, wherein the pre-distortion parameters are frequency-independent pre-distortion parameters.
- 63. (currently amended) The invention apparatus of claim 57, wherein the controller is adapted to update the look-up table at a specified periodic rate.
- 64. (currently amended) The invention apparatus of claim 57, wherein the controller is adapted to update the look-up table based on a detected change in operating conditions of the amplifier.
- 65. (currently amended) The invention apparatus of claim 64, wherein the detected change in the amplifier operating conditions corresponds to a change in a parameter value greater than a specified threshold value.
- 66. (currently amended) The invention apparatus of claim 57, wherein the controller is adapted to fine-tune the one or more parameter values based on output spectrum of the amplifier.